

Clinical Experiences with Jejunal Interposition for Postgastrectomy Syndrome

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■ *Remedial operation for intractable postgastrectomy syndrome utilizing an isoperistaltic jejunal segment interposed between the gastric remnant and duodenum has been highly successful in the hands of European surgeons. This secondary operation is rarely performed in this country.*

The author reports his experience with three patients. The initial results were uniformly excellent. In time, some symptoms recurred in two patients.

SERIOUS POSTGASTRECTOMY COMPLAINTS are generally transient and may be satisfactorily controlled or alleviated by diet, medication and time.

Rarely, postgastrectomy distress is both permanent and ravaging.

One seldom sees more miserable or constantly suffering patients. They are wasted, listless and endlessly sick. They cannot eat or work or play, and their unending unsuccessful search for help adds untold mental discouragement to their already debilitating physical complaints. They lose hope as well as weight and their enjoyment and interest in life slips away. They become a burden to themselves and their families. Dependent, unproductive and unhappy, they are ambulatory invalids well described in the phrase "gastric cripple."

In times past, such patients have often been accepted as irretrievable medical and surgical

failures and, like the rearguard battalion in a hopeless military engagement, they have been "written off."

Many, however, may be aided by careful application of one of the several remedial operations currently fully developed and in wide use (Figure 1). My personal preference among these surprisingly various and ingenious choices has been the operation devised by Henley and developed by Hedenstedt.^{2,4,5} It has the great virtue of simplicity as well as reported effectiveness.^{2,4,5,6} Its basic feature is the interposition of an unreversed isoperistaltic segment of jejunum between the gastric pouch and duodenum. European surgeons have been quite happy with the procedure, used both primarily at the time of gastric resection and secondarily for the correction of the dumping syndrome.^{2,3,4,5,6} The operation has been used but rarely in this country and only scattered reports are available for study.^{7,12,15,16} My own experience with three patients is reported below.

CASE 1. A 45-year-old man was admitted to hospital with complaint of bilious vomiting, pain

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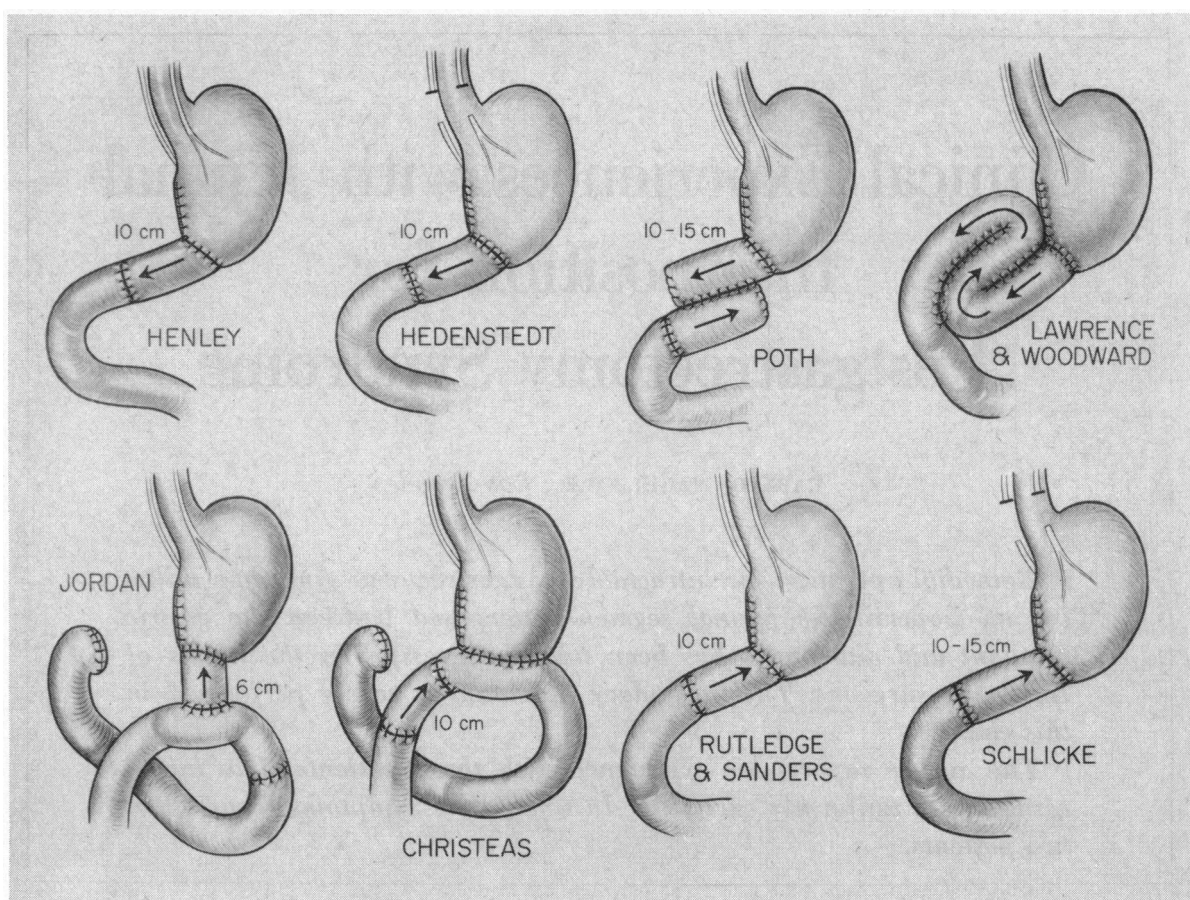


Figure 1.—The many diverse ways in which small bowel segments may be utilized in remedial gastric operations are depicted. (Adapted from Herrington, J. L., Jr.⁷)

during and after meals and symptoms suggestive of the early postprandial dumping syndrome.

Eleven years previously, a radical subtotal gastrectomy with Billroth II anastomosis had been performed. Years of duodenal ulcer troubles had been replaced by years of postgastrectomy troubles. Meals produced unpleasant effects and were often avoided. Weight loss totaled over 50 pounds.

X-ray films after a barium meal (Figure 2) showed a very small gastric remnant. The contrast material poured into the afferent loop, churned about there for several minutes and ultimately spilled over into the efferent side. Severe, cramping abdominal pain coincided with these events. The small bowel transit time was not shortened. Absorption studies and a challenging glucose meal produced equivocal findings.

CASE 2. A 46-year-old man was admitted with complaint of inability to eat, severe postprandial nausea and pain, and intermittent diarrhea. These symptoms had begun insidiously some 30 months

after subtotal gastrectomy with Billroth II anastomosis for intractable duodenal ulcer disease. They persisted unabated through the six years up to the time of admission to hospital. Weight loss totaled 65 pounds.

Barium meal studies (Figure 3) showed a small gastric remnant with speedy unimpeded filling of both afferent and efferent loops. The small bowel transit time was normal. Fecal fat excretion studies demonstrated borderline steatorrhea (8.5 gm in 24 hrs).

CASE 3.* A woman 38 years of age was seen six years following vagotomy and subtotal gastric resection with Billroth II anastomosis (Figure 4). Pain and epigastric fullness occurred during and after meals. As these complaints were aggravated by a large meal, the patient ate often and a little at a time. Diarrhea was a constant and very serious problem. She had from six to as many as 40 stools daily. Nothing gave her relief. She was extraor-

*Included in this series through the courtesy of Benjamin J. Feldman, M.D.

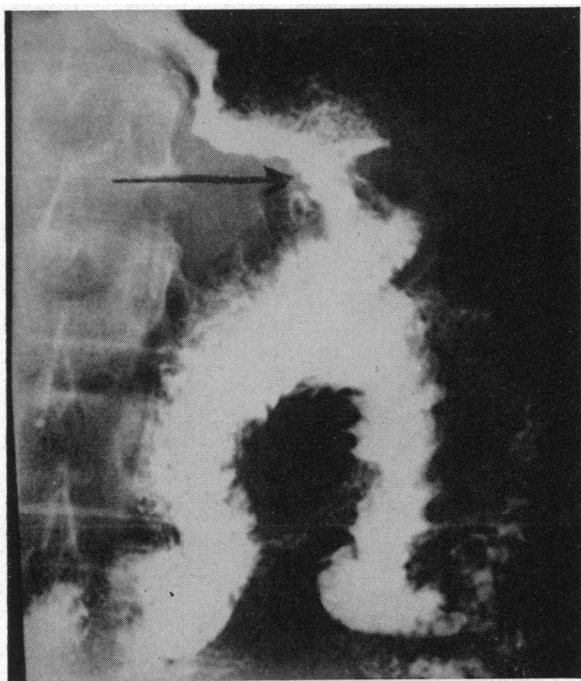


Figure 2.—(Case 1) Preoperative film showing tiny gastric pouch (arrow) and preferential filling of the afferent loop.

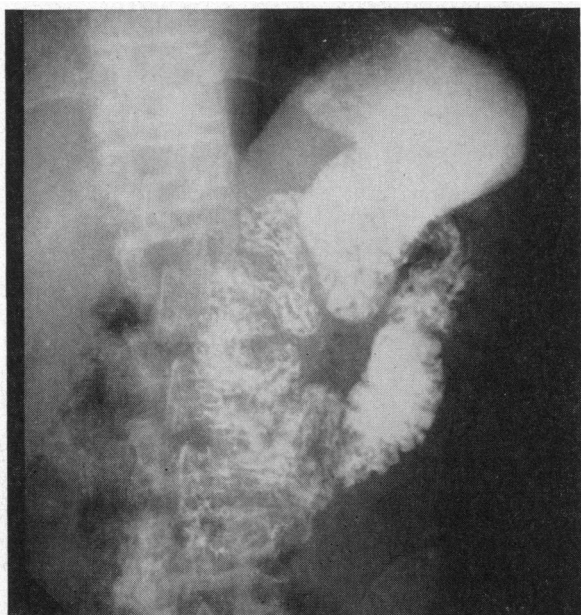


Figure 3.—(Case 2) Preoperative film demonstrates rapid filling of afferent and efferent loops.

dinarily cachectic and frail, weighing 69 pounds at the time of examination.

Operation

An identical corrective operation was performed in each of the three patients. This was the operation of Henley, the isoperistaltic jejunal interpo-

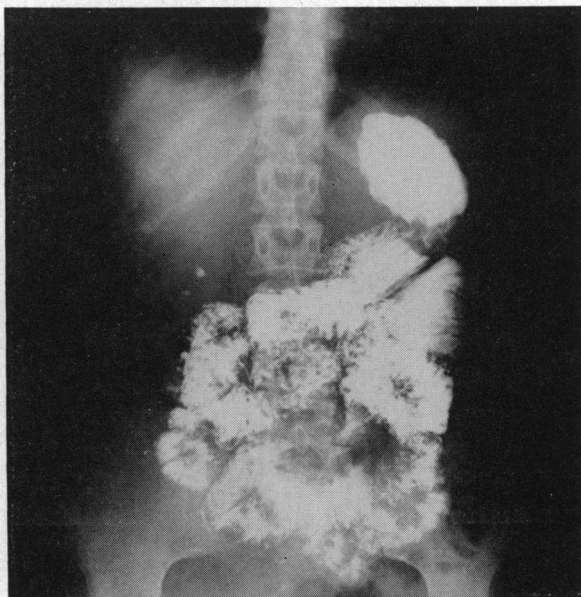


Figure 4.—(Case 3) Preoperative film. The gastric remnant is small, empties rapidly and the barium speeds along the small intestine.

sition between stomach remnant and duodenum. The technique is illustrated in Figure 5. As can be seen, the efferent limb of the previously made gastrojejunal anastomosis can be conveniently fashioned for the interposition without disturbing the anastomosis itself, save for closure of the afferent aspect.

End-to-side jejuno-duodenal implantation for the interposed segment was preferred over end-to-end suture in the hope (not realized) that the former might act functionally in a valve-like manner and perhaps simulate the lost pyloric sphincter.

The operative procedure was both easily accomplished and well tolerated. In two patients a return to "normal" diet was delayed for two weeks, apparently because of initially sluggish peristalsis in the transposed jejunal segment.

Results

The early results in all three patients were uniformly excellent. All major complaints completely disappeared. Early return to a normal unrestricted diet was accompanied by a rapid and impressive gain in weight.

The first patient declared himself vastly improved and gained 15 pounds in six months. He still felt more comfortable with smaller and more frequent meals than the conventional three a day but he seemed well satisfied.

The second patient had a weight gain of 35

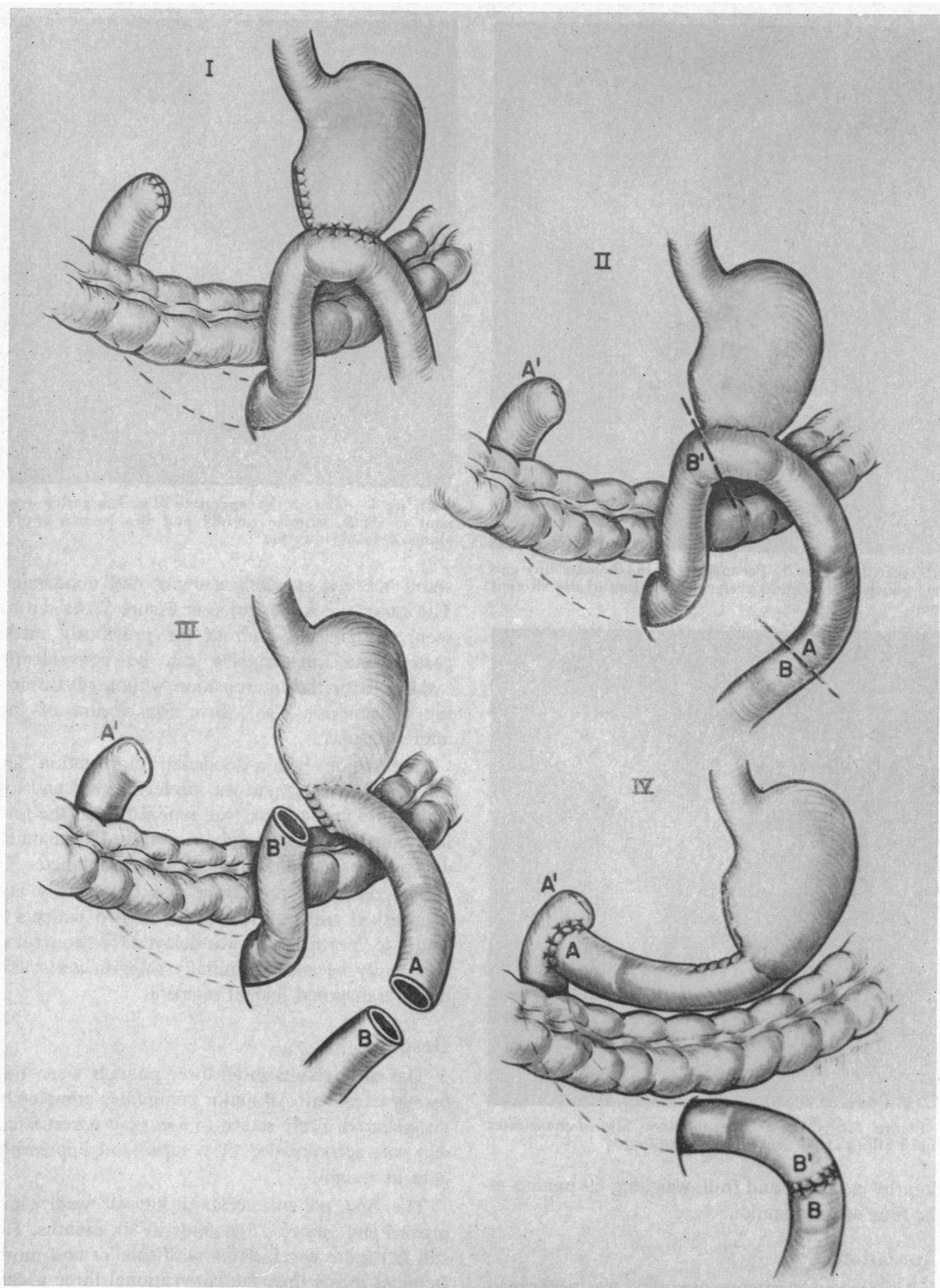


Figure 5.—I. The operative field before reconstruction. II. Dotted lines indicate sites of transection of the afferent and efferent loops. III. The divisions have been made and the afferent aspect of the gastro-jejunosomy closed. IV. The completed operation.

pounds in three months. He was eating anything and everything without difficulty. Diarrhea had ceased and the fecal fat excretion dropped to well within normal limits.

The fulminating explosive diarrhea in the third patient subsided gradually and stopped completely a few weeks after operation. Three normal pain-free meals were taken with pleasure and the patient slowly and steadily gained weight.

Unfortunately, the initial superb effects of operation have not been maintained in the first two patients. After a peak weight gain and symptom-free period of six and three months, respectively, some of the preoperative distress returned. Although the troubles are much milder than before, both patients state their symptoms are enough to again interfere with eating. Some of the early gain in weight has ebbed away. The weight stabilized at 7 pounds above the preoperative level after two years in Case 1, and at plus 22 pounds in seven months in Case 2. Both patients are unquestionably improved; indeed, one is planning to work again for the first time in five years. However, some symptoms remain and both patients are visibly disappointed at an imperfect long-term result.

The initial excellent result has been sustained in Case 3. In one year the patient has gained 15 pounds, is symptom-free and is entirely and enthusiastically pleased with the effects of the operation.

Discussion

There is more to postgastrectomy distress than the serious vasomotor complex of classic dumping. The "small stomach" and afferent loop syndromes (bilious vomiting) are examples of other clearly recognized components. These various abnormalities may be present singly or in combination in any individual patient, and one or another may predominate in unpredictable fashion. The accompanying weight loss, malnutrition and anemia are simply heirs of a decreased caloric intake. Eating becomes a painful rather than a pleasurable necessity.

It is important to recognize what part or parts of the postgastrectomy syndrome complex one is dealing with in any specific case. Proper selection of patients for operation is as important here as it is for other surgical procedures. A patient with pure "small stomach" syndrome requires an opera-

tion designed to create a reservoir to replace the lost stomach.^{9,11} Bilious vomiting is easily corrected by elimination of the afferent loop.¹⁷

The vasomotor complex, diarrhea and postprandial pain are problems not so simply explained or solved. This is a dark area and the picture is confused and mysterious.

The entire symptom complex or aggregate of "syndromes" is best explained by the concept of rapid "dumping" of food into the adjacent small intestine. This is true whether the anastomosis is a Billroth I or Billroth II or gastroenterostomy or pyloroplasty. In each instance the pylorus is destroyed and a patulous sphincterless stoma purposefully created. The food bolus pours into and overwhelms the unprepared gut, filling and distending it. Perhaps the accompanying colicky pain or "intestinal hurry" are an understandable if unfortunate intestinal response. The smallness of the stomach itself may contribute to rapid filling of the gut; it will only hold so much, and of necessity the food bolus races through the open passageway.

Recognition of these many variables and correctly placing them in relative importance in a specific clinical situation are the key to uniform rather than scattered success in surgical procedures to alleviate postgastrectomy syndromes.

The isoperistaltic jejunal interposition of Henley-Hedenstedt is very appealing because of its workable simplicity. The mixed and contradictory results with its infrequent use in this country are puzzling, particularly when contrasted to the high rate of success reported from Europe in hundreds of cases.⁸

Perhaps the plicated pouches of Woodward¹⁷ and Lawrence⁹ or the double pouch of Poth¹¹ have a higher rate of complete success. I am not certain of this. I do know they are difficult and tedious to construct in the laboratory. In fact, when animals are "prepared" for a remedial operation by previous partial gastrectomy and profound malnutrition and diarrhea are established, the fashioning of the complex plicated pouches at a subsequent operation is not tolerated. The animals die, apparently unable to withstand the ordeal of radical gastrectomy and the long complicated construction of the secondary pouch.¹⁰ Isoperistaltic jejunal interposition, on the other hand, is well tolerated in those circumstances. The results in a series of pilot experiments are impressively good. The animals gain weight rapidly following jejunal interposition and are soon restored to health and vigor,

at times as early as four weeks after secondary operation.¹⁰

Whether to place the interposed jejunal segment in the unreversed (isoperistaltic) or reversed (antiperistaltic) position is a widely debated and unsettled point. Some good clinical results with reversed segments have been reported.^{6,8,12,13,14} Stemmer and Connolly¹⁴ used the reversed segment in a highly original manner. They treated three patients who had severe dumping after vagotomy and pyloroplasty. A short reversed segment was interposed between the intact stomach and duodenum and excellent results were achieved.

Rutledge¹² and Farris,¹ however, indicated that real problems with obstruction may develop, and the operation is prone to late failure.

My experience in managing the three cases reported herein raises important questions about the isoperistaltic interposition operation. Why did the early fine result in the first two patients deteriorate into the "fair" category, and why does the third patient, in contrast, continue to do extremely well?

Perhaps the first two patients were not good candidates for any sort of remedial operation. A seldom discussed aspect of the overall problem is that of "psychic overlay." Both patients had it in full measure. This is indefinable and difficult to assess, but it may well be as important in success or failure as the host of data that may be accumu-

lated and subjected to precise scientific analysis. No such problems were present in the third case, and the result remains excellent.

A few comments as to why the operation should work at all are in order. It seems that the effectiveness of all the various remedial operations depends upon the creation, in a roundabout fashion, of a substitute pylorus. This is true whether one plicates or reverses or does not reverse the interposed segment. The "new" stomach no longer "dumps"; it empties "rhythmically and in installments."³

The isoperistaltic segment does not act as a reservoir. This point is clear. But the stomach does empty its contents in installments, and more slowly than before (Figures 6 and 7). Somewhat unexpectedly, I found the "hangup" at the gastro-jejunal anastomosis rather than at the site of jejuno-duodenostomy. Although some barium would pool in the interposed segment for a short moment, for the most part it moved right on through and the segment acted as a simple conduit (Figures 6 and 7).

Why the undisturbed gastrojejunostomy stoma should "dump" in the Billroth II position and not do so, at least to the same extent, in its transposed position is an intriguing question. The answer may be very simple. Perhaps it is the altered gastro-jejunal angle, or the new "hanging" position, or even the pull of gravity, that makes the

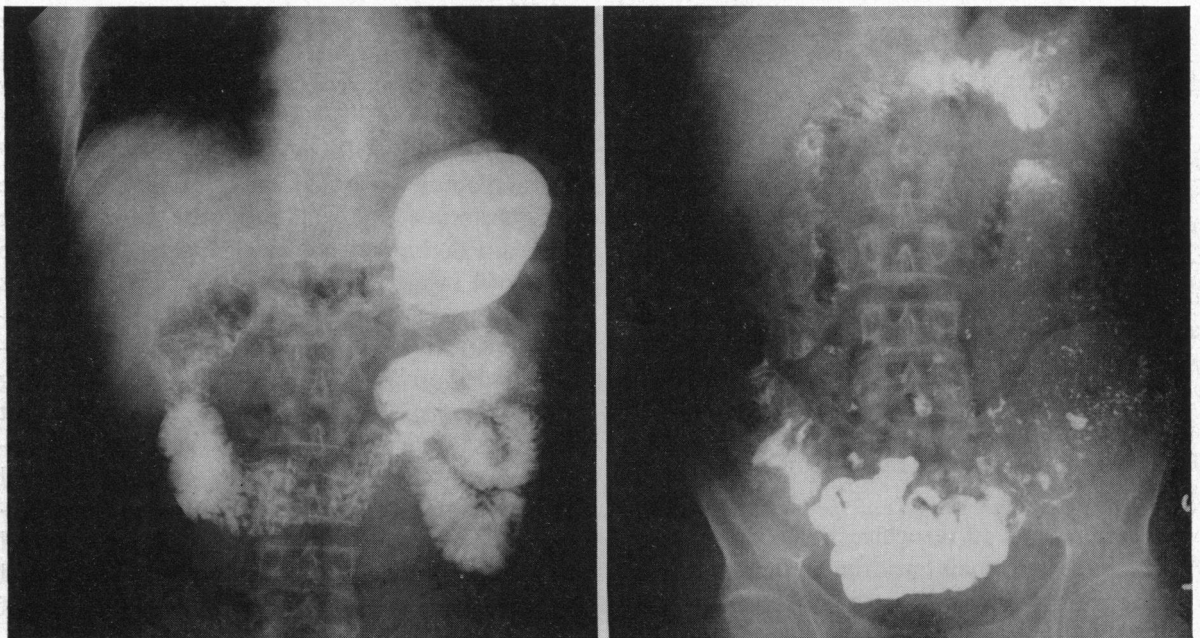


Figure 6.—(Case 2) *Left*, barium fills the gastric remnant and moves into the gut "rhythmically and in installments." *Right*, three-hour film seven months after operation. Barium outlines the interposed jejunal segment and a small quantity remains in the stomach.

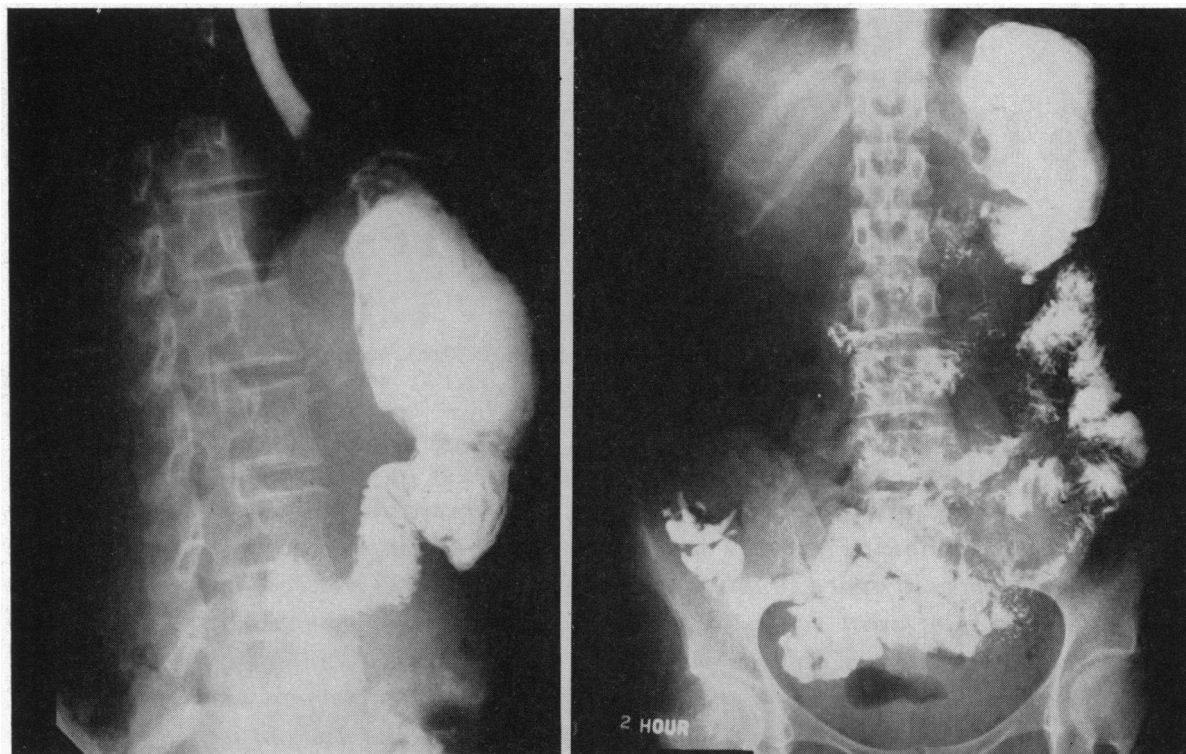


Figure 7.—(Case 3) *Left*, the interposed segment conducts barium to the duodenum. *Right*, the two-hour film shows much barium remains in the stomach, demonstrating gradual gastric emptying in "installments."

difference.

Fluoroscopic observation of the interposition in the early and late postoperative periods in Case 2 suggested that gastric emptying speeds up again in time. The jejunal conduit was decidedly sluggish at first, but later it recovered its activity. The symptoms in Case 2 returned in part coincident with this discovery.

The proper place of the isoperistaltic jejunal interposition (Henley) in reconstructive operation for postgastrectomy distress is unsettled at this time. The results are good enough, however, to warrant further clinical trial in properly selected cases.

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